

## ENGINEERING INVENTIONS.

Devices for supplying railway cars with fresh air of an agreeable temperature and free from dust have been patented by Messrs. Lewis B. White, and Leonard Henderson, of Middleburg, N. C. Two pipes from a fan blower placed on the front of the locomotive lead to and connect with the several cars of the train by means of flexible joints. One pipe passes through the boiler and fire box, conveying heated air, and the other passes outside the boiler, conveying cool air. Either may be made used separately or both together. They are connected beneath the tender, and enter the car as one tube. The fan is operated while the train is in motion by a chain from an axle of the locomotive, and when the train is at rest by a small engine supplied from the boiler. The admission of air to any car may be regulated from within the car by suitable registers, that have openings corresponding with openings in the air tubes.

Mr. Robert M. Adam, of Charleston, S. C., has patented an attachment for dredging pumps, to prevent their injury by large pieces of stone that are raised. The suction tube of the pump has a grating so arranged that the water passed through the pump must go through the grating. At the grating the tube has two opposite side branches that lead into large arms, each branch having a valve that closes the end next to the drums. A grating basket is placed in each of the drums, and a switch plate placed at the junction of the two branches provides for directing the current to either of the drums. When the pumps are operated the grating at the angle allows all pieces that will not injure the pump to pass through, while the large pieces are diverted by the switch plate into one or the other of the drums, which, when filled, are emptied.

Mr. Gideon Woodring, of Dubois, Pa., has patented an improved car coupling. The draw head of the car has a slot extending crosswise through its vertical sides for inserting from either side of the car a link, composed of two links at right angles to each other, having a hole for the passage of the coupling pin near its angle. The coupling pin passes also through elongated slots in the top and bottom faces of the draw-head. By this construction either arm may be employed as a handle to introduce the double link into the draw-head, and it may be introduced from either side of the car without danger of injury to a person.

A portable railway that is light, strong, and durable, and can be easily and rapidly built or removed, has been patented by Mr. George W. Thomas, of Fuselier Home Place, La. The railway is formed of portable track sections, the ends of the rails in one section being beveled to fit against the beveled ends of the next section, and the rails are provided at one end with cleats to receive the ends of the other rails. A turntable that fits on and between the rails carries a revolving frame that is provided with two rail pieces, beveled at one end and having staples at the other, into which hooks at the end of a rail section are hooked, so that a car can be run upon the turntable. The turntable is provided with small wheels so that it may be rolled on the track from place to place.

## MECHANICAL INVENTIONS.

Improvements in windmills, by which the speed and power are regulated according to the work to be done, has been patented by Mr. Sanford P. Coan, of Medicine Lodge, Kan. On the top of the frame is a platform, and to and above the platform is secured an annular head plate, upon which is fitted a turntable that supports the shaft and vane of the windwheel. The wheel is composed of a hub, spokes, an outer and inner rim, and sails, all so arranged and constructed that the sails may be turned more or less to catch the wind, by means of a governor, by this means regulating the speed. By means of a rod and suitable connecting devices, the sails may be turned and controlled from the ground.

A machine for sinking a heavy bucket through quicksand, and raising it rapidly to the surface, has been patented by Mr. Oscar Rust, of St. Joseph, Mo. The driving shaft of the machine is located at the base of the drilling frame, on a level with the fulcrum of the drill operating lever. The winding drum of the slush bucket is located nearly above the driving shaft, and is geared to it by means of sprocket wheels and a chain, while the drum for the drill rope is placed at the end of the frame opposite the driving shaft, and is geared to the winding drum of the slush bucket. This drum is placed loosely and slides upon a feather upon its shaft, and has a shifting lever, and suitable clutches to transmit power from the driving shaft to the drum of the drill rope. The full power of the machine can thus be applied to lift and drop the bucket to cause it to penetrate the sand.

An improvement in centrifugal fan blowers has been patented by Mr. Robert H. Thurston, of Hoboken, N. J. The chamber of the blower is made of so much greater diameter than the wheel that a space is left around the periphery of the wheel, in which the velocity of the current decreases from the inner to the outer periphery, and outside of this space is a spiral delivery channel gradually enlarging from its point of beginning to the delivery pipes. The inner edge of the vanes of the blower are nearly perpendicular to a radius of the wheel, and they curve toward the periphery of the case, so that their outer edges are radial to the axis. By this construction the direction of the motion of the air is gradually changed until it leaves the vane radially.

## AGRICULTURAL INVENTIONS.

A combined hay rack and wagon box has recently been patented by Mr. John Shafer, of Logansport, Ind. The side boards of the wagon box are made with a horizontal row of mortises near their lower edges that receive the cross bars of the rack. Hooks secured to the sideboards project slightly below them and carry the cross bars upon which the bottom boards of the box rest. These boards are taper, and the center piece is forced in to tighten them. This construction allows the bottom to be removed for unloading the box. Near the upper edges of the sideboards is also a horizontal row of mortises, for the insertion of the tenons of

braces to which slats are secured that form the hay rack. The tenons of the end braces are longer than the others and pass into recesses in the end gates of the box and are held by suitable rods. The intermediate braces are held to their place by a pin which passes through holes near the ends of the cross bars.

An improved stalk cutter and crusher, by which the stalks are better prepared for feeding than by the ordinary devices, has been patented by Messrs. William H. H. Lynn and George W. Eyer, of Staunton, Va. The feed box is of the ordinary construction and the feed rollers are of conical shape, and fluted on their surfaces, the larger end of one lying opposite the smaller end of the other. The cutters are straight knives secured to the face of a revolving circular head, the face of the head being arranged to revolve at right angles to the end of the feed box. Between the end of the feed box and the cutter head is a ledger plate, and the arrangement of this plate and the cutting blades is such that a sliding cut is imparted to the cutters. On the rear face of the cutter head are crushing teeth arranged in an irregular manner, and at the rear of the cutter is a stationary crushing plate, the lower half of which has crushing teeth the same as on the cutter. As the stalks are cut they drop between the head and plate and are crushed.

Improvements in wheat drills, by which they are adapted to work on uneven or weedy ground, has been recently patented by Mr. Abram L. Ruse, of Chase, Kan. The wheels, axle, grain box, and seed-dropping devices are of the usual construction. Attached to the draw-bars of the drill are the draw-beams of circular cutters that work in front of the drill hoes for cutting any weeds or sods that would prevent the working of the hoes. Upon the frame of the drill, in front of the grain box, is placed a shaft to which are attached connecting devices by which the drill hoes and cutters may be adjusted to work on uneven ground and at any desired depth.

## MISCELLANEOUS INVENTIONS.

A novel bottle wrapper has been patented by Mr. Henry Bell, of Baltimore, Md. The wrapper is constructed of stalks or leaves, that are a little longer than twice the length of the bottle to be covered. These are placed across each other at the center and secured together by two circular pieces of pasteboard, placed on opposite sides of the covering material, and fastened to it. The ends of the stalks or flags are then bent upward to form a hollow envelope for a bottle. For securing the wrapper around the bottle a suitable number of the flags are cut about one half longer than the rest, and a small band is passed over the ends of the flags to bind them to the neck of the bottle, and the longer ends are bent back toward the bottom of the bottle, and another band larger than the first is passed over the entire wrapper.

Some improvements in washing machines have been recently patented by Mr. Kittl Anunsen, of Winchester, Wis. The machine consists of two boards, provided on their inner surfaces with headed pins, placed in a suds box, that are reciprocated alternately by means of rotating shafts that carry mutilated cog wheels and pinions, the pinions having a complete revolution with each revolution of the mutilated cog wheel. The arrangement of the cog wheels and pinions is such that the point of rest of the boards will be at the completion of their backward movements, and the boards will be reciprocated alternately. The action of these devices is very effective in removing the dirt from the clothes.

The object of the improvement for which a patent has been granted to Mr. David B. Murdoch, of Pittsburg, Pa., is to provide fireplaces, from which all escape of dust into the room will be prevented. The fireplace has the ordinary fuel grate, and below it and connected by a passage is the ash pit, and a flue leads from the passage up into the chimney. A metal plate forms the back of the space under the grate, and in the plate are two openings which pass through the back of the grate into the flue from the ash pit, collecting and carrying away the dust into the chimney, effectually preventing its escape into the room.

A device for moistening postage stamps, envelopes, labels, etc., has been patented by Mr. Francis V. Davis, of Worcester, Mass. The moistener has an elevated chamber or reservoir, and a horizontal chamber communicating with it through a small orifice. In an opening in the horizontal chamber is placed a pad of belted wool, thick enough to stand above the upper part of the opening, when in place for use. The pad is first moistened, after which the water in the reservoir keeps it moist.

Mr. Charles Friedeborn, of Clare, Mich., has patented an improved churn dasher. A cone of sheet metal has at its apex a socket for holding the dasher handle. This cone is perforated with large holes and a radial series of smaller holes, over all of which is secured a spoon-shaped sheet metal deflector. This dasher is admirably adapted for its work, and can be easily and thoroughly cleansed.

A guide for use in sewing harness by machines has been patented by Mr. William C. Duffey, of Calhoun, Ga. The body of the guide is a metal plate bent down at the end and is attached to the machine by screws. Slides carrying guide rollers are held in slots in the metal plate by clamping screws. Between the guide roller slots the metal plate is arched, and a screw inserted in the arch carries a pressure roller, the body of the plate serving as a spring to press the roller upon the material. Channeling knives are attached, one above and the other below the plate, by a screw, and are held by adjusting screws to cut any desired distance apart, and to be in exact line with the needle.

Mr. John W. McArdell, of Brooklyn, N. Y., has patented a guard for plumber's shave hooks, by which their edges are protected while being carried. The knife and shank are of the usual construction, and are detachably secured to the handle by a pin which passes through the handle and shank. A centrally apertured disk is made a little larger than the shave hook, and to its center is attached a split tubular stem that receives the shank of the shave hook. This stem has a thread upon its outer surface to receive a handle

by which the stem is clamped to and loosened from the shank. When the disk is pressed down the hook cannot come in contact with anything to be shaved. The disk is also used as a gauge to place at end of the pipe, so that the shaving will begin on all sides of the pipe at the same distance from its end.

An automatic regulator for windmills has been patented by Messrs. John Lamont and Hugh White, of Annawan, Ill. The water receiving tank rests on a horizontal frame near the ground, and to this frame are attached vertical ways for carrying a frame which contains a bucket that is balanced by a weight of such gravity that when the bucket is empty the frame will rise. The overflow spout of the tank discharges into the bucket, and to the bucket is attached a rod connected with the controlling mechanism of the windmill, and so arranged that when the bucket is filled the pumping ceases. As the water lowers in the tank a float operates a lever to tilt the bucket, when the pumping proceeds again.

Mr. Edward D. Blackwell, of Montpelier, Vt., has recently patented an improvement in writing pens, the object of which is to prevent the ink from the pen from soiling the fingers of the user. The pen, which may be of any desired pattern, has the hollow or inner concave side of its body divided by a cross wall or partition at a suitable point in the length of the body to prevent interference with the fit of the pen in a suitable holder, and to avoid impairing the elasticity or flexibility of the pen. This wall acts as a stop or dam to the ink contained within the pen from soiling the writer's or user's fingers.

A spoon that may be used by invalids and children without spilling its contents has been patented by Amelia C. Felasberg, of Newark, N. J. A spoon of ordinary form has been attached to or formed upon the edge of the larger portion of its bowl a lip that is inclined toward the tip of the bowl and is highest opposite the handle and tapered each way toward the end of the spoon. The lip may be made outwardly similar in form to a section of an inverted spoon bowl. This spoon will prove of great convenience for those who have the care of children or persons that are sick.

A novel device for catching the drip of wet closed umbrellas has been patented by Mr. Charles L. L. Emery, of Biddeford, Me. The device consists of a rubber cup adapted to hold a sponge and to receive the lower end of the umbrella staff. The end of the staff passes through the mouth of the cup, a washer placed over the sponge, and a hole in the bottom of the cup. The sponge wipes the end of the staff dry and absorbs the water which runs from the closed umbrella, and the washer prevents the sponge from coming in contact with the cloth of the umbrella.

An improved writing tablet has been patented by Mr. Edwin P. Wentworth, of Cape Elizabeth, Me. The base upon which the paper is held has two notches in its edges for the reception of a rubber band, and a strip of wood is hinged to the base by a flexible flap. This strip is formed with a longitudinal groove having notches at each end for the reception of the elastic band, and by the strip the paper placed on the tablet is held to its place. If a cover is provided it is hinged to the opposite end of the base from the pressing strip, and is provided on its inner surface with a blotter, or it may be provided with a pocket for carrying paper and blotters.

A protector for the teeth of folding combs has been patented by Mr. John Lowe, of Clinton, Mass. Two combs are pivoted to each other by means of a pintle in such a manner as to swing in parallel planes. Between the two combs and on the pintle is pivoted a plate provided at its longitudinal edges with flanges projecting from opposite sides of the plate, and are bent downward toward its opposite edges to form pockets for receiving the ends of the teeth of the combs to protect them from being broken.

Messrs. William F. Dodge, of Wilkesbarre, and Thomas M. Righter, of Sandy Run, Pa., have patented a novel form of meshes for coal screens, such as are used with coal breakers for sizing coal, by which the slipping of the wires and consequent irregularity is prevented. The frame of the screen is of any suitable size, and the wires are continuous between two opposite sides of the frame, and are bent so that each wire is formed with a series of angular loops. The wires are put together to form the netting by engagement of the loops forming interspaces of uniform size. The wires being connected to the frame there can be no slipping at the joints, and the screen will remain of uniform mesh under all ordinary treatment.

Mr. Charles A. Tarragon, of The Dalles, Oregon, has recently patented a portable corral that is made of separate panels, held together and prevented from lateral and longitudinal movement by suitable pins and latches. It may be taken down and packed completely for moving long distances, and is provided with wheels so that it may be readily drawn short distances from place to place without being taken down. These corrals may be of any size. At one end is a door for the admission of stock, and at the opposite end is a cabin for the herder. By a system of adjustable rafters and braces a roof frame is provided that may be covered with canvas if desired.

A device by which beginners in learning to write may easily acquire the habit of holding the hand and penholder in the proper position has been patented by Mr. Samuel S. Rogers, of Columbia, W. T. The device consists in providing the penholder with a guiding wire, to be used in combination with a hand grasp, that is formed with guides for the holder and wire. The hand grasp is formed in such shape that it prevents the third and fourth fingers from closing upon the palm of the hand, and the hand from taking an unnatural and cramped position.

Mr. Frank G. Pettus, of Mason, Tenn., has patented an improved car coupling, consisting in a drawhead having two longitudinal recesses, one of which is provided with a transverse partition, and a hook is pivoted in the other and is adapted to catch on the transverse portion in the recess of the opposite draw-head. The hooks can be raised by means of a series of pivoted rods reaching to the roof of the cars, or by cords or equivalents reaching to the sides of the car. By

means of this invention the cars are coupled together firmly, and can be uncoupled and coupled rapidly and without danger. A car with an ordinary link receiving drawhead can be coupled to a car provided with this improved car coupling, as the link can be passed into the recess in the drawhead and held by the pin.

A novel and ingenious lubricator for use on shaft hangers has been patented by Mr. John M. Williams, of Pittsburg, Pa. The lubricator is composed of two goblet shaped vessels, each having hollow necks, the smaller being screwed into the neck of the larger. The external thread of the inner vessel and the internal thread of the outer are grooved vertically, the grooves in each corresponding with the other. A coiled spring is placed in the inner vessel, the lower end extending through the neck to the journal, the upper end resting against a cap which fits the top of both the vessels. Notches at the tops of the inner and outer goblets correspond with the grooves at their necks. The grooves in the neck being open, and the outer vessel being supplied with oil and the inner with tallow, the device is ready for use. As the shaft revolves, the end of the spring resting upon it becomes heated and melts the tallow, which flows to the shaft. If it is desired the oil supply may be cut off by disengaging the spring and turning the inside cup so that the grooves in the necks do not correspond.

Mr. Daniel Neilly, of Bradford, Can., has patented devices by which the pressure bar of sewing machines can be moved, and the thread slackened by the same hand that stops or starts the machine. The machine has pivoted to one side of its arm a bar, an arm on one end of which takes under a projection on the pressure bar rod, and its other end is bent to form a handle next to the balance wheel. A weight attached to the arm releases the pressure rod. One end of a slotted slide is attached to a thread slackener, and the other end near the balance wheel is bent up to form a finger piece. This arrangement brings the balance wheel and the devices for slackening the thread, and raising the pressure bar, where they can be operated by one hand. A simple and effective tension device is also provided.

Mr. Daniel Leary, of New York city, has patented a new shade holder for candles. It is made of two detachable parts, one of which fits upon the candle, the other holding the shade. The part that fits upon the candle is composed of two rings connected by rods, the upper ring being reduced in diameter at its upper end by a flange resting upon the top of the candle and supporting the whole device. The shade holding part consists of a ring that fits over the ring on the candle, and is supported from it by upward projecting rods, and a larger flaring ring which supports the shade.

Mr. Charles Connor, of New York city, has patented a rubber composition adapted to stand a high degree of heat without change. The composition consists of rubber, soda, lime, camphor, sulphur, etc., combined in proper proportions. The ingredients are thoroughly mixed and rolled into sheets of suitable thickness to suit the purpose for which it is to be used, and then put into an oven and heated to a temperature of about 290° Fah. The inventor says this compound will stand a high degree of heat, without material change, and will be very elastic, and is fireproof.

A device for securing satchels and valises to car seats, so that they cannot be stolen, has been patented by Mr. Robert Harris, of Peekskill, N. Y. The handle of the satchel is attached at its ends to staples secured to the bag frame. At one end the handle is attached by an eye in the usual manner, and at the other end it is fitted with a lock, having a hasp that passes through the staple of the bag frame. This lock has a cylindrical case to resemble the metal tip at the other end of the handle.

An improvement in sample cases for the use of travelers has been patented by Messrs. William B. Worger and Edwin M. Richford, of London, England. The body of the trunk is of rectangular form, and is provided with drawers. In the bottom of the trunk is a recess, and in the ends of the recess are grooves that extend its whole depth, the front ends of the grooves being turned down at right angles to their length. The front of the trunk is a door, and upon its lower edge are secured pivots, that when the door is closed, drop into the right angled grooves and are retained there by the lid being received under the edge of the top, where it is locked. When unlocked it is free to turn on its pivots, which are then moved into the straight part of the grooves, and the door is then slid into the recess under and out of the way of the drawers.

A lamp bracket that is safe, convenient, and maintains the lamp upright in various positions of the bracket, has been patented by Mr. Morton L. Munson, of Charlotte, Mich. The base piece of the bracket is so constructed that it may be attached to a desk or other convenient place. On the face of the base piece is a semicircular slotted piece, and pivoted at the center of the semicircle is an arm on which the lamp is carried. This arm has secured to it a bolt which passes through the slot, and has a nut on the opposite side by which the lamp may be secured in any desired position.

## TEXTILE INVENTION.

An invention by which an equal and regular supply of wool may be delivered to a carding machine has recently been patented by Mr. Ernst Gessner, of Aue, Saxony, Germany. The wool box is straight on the front side, and has within it a vertical endless lifting apron, having teeth, which, as the apron revolves, carry the wool to a revolving beater, by which the larger bunches are driven back, and the remainder is delivered to the distributing cylinder. Between the apron and the feed rollers is a grating burr box, and immediately over the grating a beater revolves, and between this and the grating the wool is dashed, the beater dislodging all particles of foreign matter, which fall into the burr box below. After the wool passes the grating it is delivered to the lap roller and wound in an even and uniform lap. Underneath the lap roll is a toothed roller, by which the wool is pulled off from the lap roll in even quantities, and it is deposited by a revolving brush upon the feed belt of the carding machine.